



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/539,157

06/14/2005

Stephane Lessi

Serie 6075

2559

40582

7590

09/30/2008

AIR LIQUIDE

Intellectual Property

2700 POST OAK BOULEVARD, SUITE 1800

HOUSTON, TX 77056

EXAMINER

HOPKINS, ROBERT A

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

09/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,157	Applicant(s) LESSI, STEPHANE	
	Examiner Robert A. Hopkins	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Earls et al(4194891)

Earls et al teaches a method which may be used for supplying occupants of an aircraft with an oxygen rich gas mixture(column 1 lines 1-14), the method comprising producing an oxygen rich gas mixture by air separation in a pressure swing adsorption system(figure 1) wherein one cyclone of the pressure swing adsorption system comprises an adsorption/production phase, a desorption/regeneration phase, and a duration less than about 10 seconds(column 17 lines 15-16), the pressure swing adsorption system comprises a high performance adsorbent., wherein the adsorbent has a particle size less than about 0.8 mm(column 17 lines 22-24; 40 mesh =0.42 mm), and feed air is introduced to the pressure swing adsorption system at an inlet temperature between 50 degrees and 90 degrees. Earls et al further teaches wherein the inlet temperature is between about 60 degrees and 80 degrees. Earls et al further teaches wherein the inlet temperature is between about 60 degrees and 70 degrees. Earls et al further teaches wherein the average size of the particles is less than about 0.6 mm. Earls et al further teaches wherein the duration is between about 6 seconds

Art Unit: 1797

and about 9 seconds(column 17 line 29). Earls et al further teaches wherein the feed air is introduced to the pressure swing adsorption system with a pressure less than about 5 bar(column 18 lines 10-11; 20 psig =1.37 bar). Earls et al further teaches wherein the feed air is introduced to the pressure swing adsorption system at a flow rate between about 300 NL/min and about 3600 NI/min.

Claim 20 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Earls et al(4194891)

Earls et al teaches a method which may be used for supplying occupants of an aircraft with an oxygen rich gas mixture(column 1 lines 1-14), the method comprising producing an oxygen rich gas mixture by air separation in a pressure swing adsorption system(figure 1) wherein one cyclone of the pressure swing adsorption system comprises an adsorption/production phase, a desorption/regeneration phase, and a duration between 6 seconds and 9 seconds(column 17 lines 15-16, noting column 17 line 30 stating 8.1 seconds), the pressure swing adsorption system comprises a high performance adsorbent., wherein the adsorbent has a particle size less than about 0.6 mm(column 17 lines 22-24; 40 mesh =0.42 mm), and feed air is introduced to the pressure swing adsorption system at an inlet temperature between 60 degrees and 80 degrees.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1797

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Earls et al(4194891).

Earls et al teaches all of the limitations of claim 17 and 18 but is silent as to wherein the adsorbent comprises zeolite X with a lithium content greater than about 85% and greater than about 90%. Examiner notes that the PSA system in Earls et al teaches a zeolite adsorbent, and because zeolite adsorbents with high lithium percentage are well known in PSA systems, it would have been obvious to someone of ordinary skill in the art at the time of the invention to provide an adsorbent which comprises zeolite X with a lithium content greater than about 85% and greater than about 90% in order to provide an adsorbent which provides for an optimum oxygen recovery from the feed air.

Earls et al teaches all of the limitations of claim 19 but is silent as to wherein the zeolite has an Si/Al ratio between about 1 and 1.25. Examiner notes that the PSA system in Earls et al teaches a zeolite adsorbent, and because zeolite adsorbents Si/Al ratio between about 1 and 1.25 are well know in PSA systems it would have been obvious to someone of ordinary skill in the art at the time of the invention to provide an adsorbent which comprises zeolite adsorbents Si/Al ratio between about 1 and 1.25 in order to provide an adsorbent which provides for an optimum oxygen recovery from the feed air.

Art Unit: 1797

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Earls et al(4194891).

Earls et al teaches a method which may be used for supplying occupants of an aircraft with an oxygen rich gas mixture(column 1 lines 1-14), the method comprising producing an oxygen rich gas mixture by air separation in a pressure swing adsorption system(figure 1) wherein one cyclone of the pressure swing adsorption system comprises an adsorption/production phase, a desorption/regeneration phase, and a duration between 6 seconds and 9 seconds(column 17 lines 15-16, noting column 17 line 30 stating 8.1 seconds), the pressure swing adsorption system comprises a high performance adsorbent., wherein the adsorbent has a particle size less than about 0.8 mm(column 17 lines 22-24; 40 mesh =0.42 mm), and an inlet temperature between about 60 degrees and about 70 degrees, an inlet pressure less than about 5 bar , and has an inlet flow rate between about 300 NI/min and about 3600 NI/min. Earls et al is silent as to the adsorbent comprises zeolite X with a lithium content greater than about 90%, and the zeolite has a Si/Al ration between about 1 and about 1.25. Examiner notes that the PSA system in Earls et al teaches a zeolite adsorbent, and because zeolite adsorbents with high lithium percentage are well known in PSA systems, it would have been obvious to someone of ordinary skill in the art at the time of the invention to provide an adsorbent which comprises zeolite X with a lithium content greater than about 85% and greater than about 90% in order to provide an adsorbent which provides for an optimum oxygen recovery from the feed air.

Response to Arguments

Applicant's arguments filed 8-12-08 have been fully considered but they are not persuasive.

Applicant argues Earls et al with respect to claim 10 fails to disclose feed air introduced to a pressure swing adsorption system at an inlet temperature between about 50 degrees C and about 90 degrees C.

Examiner notes that the pressure swing adsorption system of Earls et al is clearly used in an aircraft environment, wherein a compressor(12) supplies pressurized air to the two bed PSA system. Examiner notes that the current application is also used in an aircraft environment, wherein a compressor supplies pressurized air to the PSA system, therefore the volumetric flow rate of pressurized air supplied is equivalent in both Earls et al and the current application. Examiner also notes that the feed air pressure in Earls et al is about 1.37 bar, which is in the range of less than 5 bar defined in the current application. Therefore, Examiner respectfully submits that because the volumetric flow rate of feed gas of Earls et al and the current application and pressure of feed gas of Earls et al and the current application are within the same ranges, the feed air inlet temperature must inherently be within the range of between 50 degrees C and 90 degrees C as defined by claim 10, and also that optimization of the feed volume and feed pressure would lead to the feed air inlet temperature being between 60 degrees C and 70 degrees C. Examiner also notes that the particle size of the adsorbent in Earls et al is less than about 0.8 mm(40 mesh =.42 mm), therefore the feed air inlet temperature of Earls et and the current application must be in the same range to

Art Unit: 1797

achieve a total cycle time of less than 10 seconds (2-8 seconds in Earls et al).

Examiner notes the above statements apply also to claims 20 and 21 of the current application.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rah
September 23, 2008

/Robert A Hopkins/
Primary Examiner, Art Unit 1797

Application/Control Number: 10/539,157
Art Unit: 1797

Page 9